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INDUSTRIAL EDUCATION,

AND

DRAWING AS ITS BASIS.

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ADDRESS DELIVERED AT THE ANNUAL MEETING

OF THE

MASSACHUSETTS TEACHERS' ASSOCIATION,

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BY

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NORMAL ART SCHOOL, BOSTON, MASS.

LABORERS IN THE VINEYARD.

"Two men I honor, and no third. First, the toilworn Craftsman that, with earth-made Implement, laboriously conquers the Earth, and makes her man's. Venerable to me is the hard Hand; crooked, coarse; wherein notwithstanding lies a cunning virtue, indefeasibly royal, as of the Sceptre of this Planet. Venerable too is the rugged face, all weather-tanned, besoiled, with its rude intelligence; for it is the face of a Man living manlike. Oh, but the more venerable for thy rudeness, and even because we must pity as well as love thee! Hardly-entreated Brother! For us was thy back so bent, for us were thy straight limbs and fingers so deformed; thou wert our Conscript, on whom the lot fell, and fighting our battles wert so marred. For in thee, too, lay a god-created Form, but it was not to be unfolded; encrusted must it stand with the thick adhesions and defacements of Labour; and thy body, like thy soul, was not to know freedom. Yet toil on, toil on; *thou* art in thy duty, be out of it who may; thou toilest for the altogether indispensable, for daily bread.

"A second man I honor, and still more highly; Him who is seen toiling for the spiritually indispensable; not daily bread, but the bread of Life. Is not he, too, in his duty; endeavouring towards inward Harmony; revealing this, by act or by word, through all his outward endeavours, be they high or low? Highest of all, when his outward and his inward endeavour are one; when we can call him Artist; not earthly Craftsman only, but inspired Thinker, who with heaven-made Implement conquers Heaven for us! If the poor and humble toil that we have Food, must not the high and glorious toil for him in return, that he may have Light, have Guidance, Freedom, Immortality? These two, in all their degrees, I honor; all else is chaff and dust, which let the wind blow whither it listeth."—
Sartor Resartus.

From * 338.2190
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INDUSTRIAL EDUCATION, AND DRAWING AS ITS BASIS.

WITHIN the memory of people now on the earth, some of whom being alive are capable of noting the fact, there have been considerable changes in many things. It was a stilted saying of Dr. Johnson's, that "that which is ancient is not necessarily obsolete, and that which is modern is not necessarily new." So it is probable that many of our most original new inventions have been worn threadbare in other ages, after amusing antediluvian people by their extreme novelty; whilst many things which we are proud of now will pass into the realms of oblivion, to reappear a thousand years hence as the last new thing. Thus there appears to be a resurrection for all things, periodical or final, whether they be good or bad, to our joy or sorrow.

Perpetual change seems to be the law of nature, as inflexible as the law of gravitation, and though the most merciful changes are sometimes so gradual as to be almost imperceptible to us, yet there is no halting-place between the cradle and the grave for us, either in the changes which we are causing, or those which we are undergoing. I think it was Edgar Allan Poe who, in one of his tales, makes a revived Egyptian mummy say that "great movements" used to be

awfully common in his young days, some centuries before the dynasty of the Pharaohs, but people got sick of them because they never made any progress. It is, perhaps, hardly safe to generalize too broadly on the limited observations of a short lifetime, or I should feel inclined to say that what ails many of the great movements of our day, is that they make no progress. Yet there is a wholesome and healthy love of change, which recognizes the necessity of transformation as a natural law, without claiming for it the virtue of a new inspiration, or condemning all other revelations.

Healthy people are always growing, and feel the divine irritation of growth, either physically or mentally; and it is the surest sign of disease and decay when human creatures cry out only for rest, and permission to doze away into the region of perpetual slumber, crying out all the time, "Let us alone."

Let us, therefore, recognize that it is human nature, healthy human nature, to be alive and moving; that to be stagnant and averse to change is deathlike, and that the golden mean is to accept the inevitable cheerfully, and try to grow all the time, respecting the past and hoping for the future, modestly desiring that our best work may be acceptable, and that for all weakness and deficiency we may be charitably forgiven. This view seems to be consistent with the recognition of change that is progressive, and the permanence of that which is excellent in itself.

I have been led into this train of thought by a somewhat prolonged study of the actual present condition of education in this country, and by a careful analysis of some of the practical results of education as displayed by the nations of the world in the Paris Exhibition. The conclusions come to by a practical observer may be of some interest to you, and therefore I

will ask you to excuse the imperfect manner in which they may be presented to you, for the sake of that which I shall have to say.

THE TEACHER'S OFFICE.

And firstly, I know that I shall not ineffectually appeal to your indulgence for permission to say something on behalf of the teacher's office and character, for if it be true that "as is the priest so are the people," it is equally true that "as is the teacher so is the education."

I think it can be demonstrated that many of the failures and difficulties which society suffers from, and by which education is injured, are distinctly traceable to the very indifferent, if not erroneous opinions, generally held about the position of the teacher; and it seems to me to be the duty of those who feel this to be true, to say so, as modestly as they can, but as firmly as they know how.

We often hear things said, or see them written, about the acts and motives of teachers, that are shocking if true, and wickedly unjust if they are not true; and I very much fear that teachers allow themselves to be talked about, and even thoughtlessly join in attacking their own class, in a manner which encourages silly people to belittle their office, by statements and behavior that are insulting to honest men and women who happen to be teachers. Let me, then, remind you of a wise old saying which runs thus:

"Greater love hath no man than this, that he lay down his life for his friends."

I know of no higher way in which we can testify our respect and regard for an object, or a vocation, than by laying down our lives for it, either by one great heroic act of self-devotion, in the jaws of death if need be, or by a long life of daily duty, consecrated to the work which our hands

have found to do, conscientiously and lovingly laying down our lives as the most cherished offering we can make to our God and our country — and the most perfect expression of our greatest love.

The vocation of a teacher offers us the opportunity of doing this, in the most exalted manner; for neither the bar, the pulpit, the platform, nor even the press, is so powerful for good or evil as is the school-room and its influences. At a time when the human character is sensitive and unfolding, it is placed under the influence of the teacher to mould it into shapeliness or misdirect it into moral ruin; and this mighty influence should be wielded with a sense of awe and responsibility that ought to crush out every unworthy thought or act from a teacher's mind and life.

That many teachers share in this thought and feel this great responsibility we all know to be the case, for many a saintly or heroic life may be traced to the inspiration and example of a teacher, whose life and soul have been consecrated to the work of the school-room. But that this habit of thought, as a qualification for the vocation of a teacher, is not invariably looked for by society, nor among the requirements of school committees, is proof that the absence of it is no bar to employment. Yet I unhesitatingly assert, that men who do not feel the great moral responsibility of being teachers, or who do not regard their occupations as being worthy of the brightest intellect and the most devoted lives, or who are teaching school as a mere temporary occupation, are not fit to be teachers at all.

TENURE OF OFFICE.

The ideal of a teacher's character and qualifications being so high, it follows that the office should be surrounded with

the respect, and even veneration, proportioned to its importance in the minds of all sensible people. If men and women seriously propose and offer to prepare themselves for, and devote themselves to, the work of a lifetime, and are found upon inquiry to be fitted for it, they ought to be engaged for a lifetime, or during mutual agreement; and until this is the case, the reciprocity in the engagement, which should be equally shared by both of the contracting parties, is all on the side of the teacher. Here there is room for change which is progress.

That much-needed change would be one way in which the public could display its respect for the office, and would be some return for exacting the very highest qualification, both intellectually and morally, from all teachers; and the public good requires that society should be content with no lower standard.

Another way in which the work of education might be purified and improved, would be to regard teaching as a profession, and paying for the labor performed as well as any other professional work is paid for, either in public or private employment. The best teacher in a city ought to be paid as much as the best lawyer, doctor, or clergyman, and the lesser lights in the same ratio as in other professions; and if that is not so, we may naturally expect the education of that city to be of a lower order than its law, physic, or divinity; and anything so deplorable as that is fatal to the happiness and economy of any community, besides being manifestly unjust to teachers and to education.

Education itself may be elevated by thus raising the standard of personal character and professional attainments required in the teachers, making their positions permanent, and increasing their compensation to an equality with that

awarded to other professional labor of the same value. Among the various agencies by which we may help forward the good cause of education, it seems to me these are worthy of trial, or at any rate, of discussion. Perhaps some of our veteran leaders may feel that such generalizing as I am guilty of, is no part of a special teacher's business. What, then, if I should say that I am not a special teacher, though it is my business to make and direct such teachers, and can do a special teacher's work in my profession, if need be; — am I incapacitated by my vocation from taking an interest in, or stating my opinion regarding matters of public interest, either general education or general demoralization, more than you are, or any man is, by his trade, profession, occupation or calling? If so, what is it that disfranchises me and leaves you and others still enfranchised? I would not deprive you of this right, nor deny your qualification; and that which you and all other citizens are entitled to I claim for myself, and will maintain my right to it. But to this I would add, that as a parent, citizen, and tax-payer, I am more interested in the whole subject of education than in any one department of it, and that it is the general character and appreciation of education which to-day stands in need of thoughtful consideration, much more than any of the details of instruction in one or more branches. This must be my apology. I hope it is even yet possible to be both by profession an artist, and by graduation and vocation a teacher, without ceasing to be a citizen. I claim no more, and will accept no less than this, from any community of which I form a part.

CHANGES IN EDUCATION.

Reverting to what has been already said on the subject of change, it is apparent to me that there must come great

changes in our time in the whole field of education, and that we must either take part in them, or be superseded by them.

No thoughtful American can have examined the two great exhibitions at Philadelphia and Paris, as I have done, without feeling that his country does not show well at such displays in comparison with many European countries. It used to be the monopoly of England to stand lowest in the visible evidences of civilization, as seen in her manufacturing industries. I am sorry to be obliged to say that to-day we in America have inherited that reputation which England has lost. You must bear with me in thus speaking the truth to you, because I am here myself to share in the reproach and to do my part in its removal. I have not deserted a sinking ship to fly to a sound one, but have deliberately, on your invitation, forsaken the safe ship, and placed my foot upon the deck of one which, on the great industrial sea of labor, is neither sound nor safe; so that if you impugn my judgment, you can hardly question my motives, or deny my right to speak. "Come over and help us," was the invitation, nay the very words, which brought me across the Atlantic, and, being here, I am going to be heard.

In the great Exhibition of 1851, the English critic had to walk through the industrial department of his native country with bowed head and a sensation of shame. In the Paris Exhibition of 1878, he could examine English work with head erect and a feeling of honorable pride. And though this may be regarded as a sentiment only, it is one which has a very metallic character, intimately associated with dollars and cents, and with that which makes life worth living.

I have seen and watched this transformation of the industries of a nation, from a condition of semi-barbarism to one of the greatest refinement; from the comparative worth-

lessness of rude labor to the highest development and value of matured skill. It is an inevitable result brought about by human means. It is something the nation is proud of and finds intensely profitable. But there is no mystery about it to those who have been working in the vineyard or even only been looking on for the last seven and twenty years; nothing supernatural in this growth of skill and values, which has developed under our own observation as the result of faith, patience, foresight, and work. This is how it all came about. A few men who were intelligent enough to see that skill paid better than clumsiness, and was a nobler and more precious thing, and were patriotic enough to say that England was behind in her taste and skill, and that it was unprofitable economically and disgraceful nationally to be on a lower plane than other nations in the highest developments of civilization; a few men who would *not* be put down by the derisive shouting of "Rule Britannia," by sham patriots, nor the roaring of British lions, have achieved this transformation so glorious for England; and have done so by appealing, through a system of national art education, for something which was said to be not in the instincts of Englishmen; and in spite of all opposition, and in the face of most unfair criticism, have accomplished their work, and made the English a skilled nation. Now, I hold that whilst it requires some courage to say deliberately that we are behind European nations in taste and skill, we must say it, though it makes the eagle scream, or the lion roar, for it is the only verdict that can be given by honest and competent judges; and that to say so here and now, until it is believed and remedied, is not to express an opinion which is pleasant, for it may cause me to be much misunderstood, but, simply in the line of a proper discharge of my duty, because I know it to be true,

and this may be one step in a long journey, perhaps, towards the industrial skill this nation sorely needs.

This is where the subject becomes interesting to us as teachers. If the present condition of American manufactures is unprofitable and discreditable; if skilled labor cannot, under the present educational dispensations, be produced in this country and has to be imported, and the enormous importation of the products of skilled labor from abroad is not to be continued, discouraging as it does the native workman and impoverishing the whole country, then it comes within the province of a more developed and practical education to provide the remedy; and I take it that we, as teachers, have something to do with this matter. I know that microscopic politicians have persuaded the long-suffering public of this country that teachers ought to have nothing to say about education; but I think they should have, and am going on to say my share, in spite of all the politicians who are not yet translated.

To whom should the public look for information about education, if not to teachers? If teachers are timid or dumb, can they complain if education suffers? Two-thirds of the general literature of education is inflicted upon a docile public by plausible theorists who never strayed even by accident into a class-room; who boldly seize the chart and compass to navigate our ship on a sea they never saw, and by observations they never took. Brethren, it is high time that teachers should begin to teach, and not leave themselves and the public the victims of theoretical experimenters, who are not even yet in the early days of their apprenticeships to a very complex business. I notice that this latter-day cry for oral instruction only, and abolition of text-books, comes from such people, who, nevertheless, have no intention of touching

this burden with so much as one of their little fingers. Such cries are dangerous to progress already made, and are like newly discovered short cuts, which are proverbially long roads. Young enthusiasts just beginning to sense the power which is new to them; ancient fabrics set on fire for the first time and burning with a consuming fierceness; extremists who, by exaggeration, make the mildest virtues into aggravating vices, all by their intensity bring a good thing into disrepute, and have to be tempered by moderation, and cooled down into steady and unexcited service. Oral instruction is necessary to every good teacher, and the younger the pupils the more it is essential to their happiness and progress, but you can no more abolish text-books for proper use in day schools than you can banish them from universities or technical schools for adults. And there is as much danger to be feared from oral instruction without text-books as is found in the mechanical use of text-books without the life of oral instruction. Every good teacher approves of a due proportion of oral instruction, and practises it, regarding it as the brightest and keenest weapon in his armory; and uses text-books also to make his work stick, and sustain him and his pupils, in weak moments, at the standard of their best. No good teacher avoids it, or goes fanatically insane about it, either for or against. He knows that if you deliberately abolish text-books, and call upon teachers to depend upon oral instruction only, not occasionally, as it is now, and always has been practised, by good teachers, but as proposed by fanatics, namely, for five hours a day on five days in the week, you will kill all the good teachers in a month, leaving alive only the sticks who are skilled in the art of self-preservation, who never teach at all, orally or otherwise, and therefore never wear out, to comfort you in your solitude among the graves of those you have destroyed.

Suppose, for example, you were to try this wholesale oral experiment on ministers in churches. Make them preach without manuscript, and insist on their congregations singing without hymn-books, the preachers to change their subjects every hour, not for one hour a day but for five hours a day, not only on one day in the week, but for five days in the week, to a congregation of lost souls, every one of whom has been born an infidel, and is in dire need of conversion. The clergy are good, self-sacrificing men ; many of them approve of this idea *for schools*, and would doubtless not object to having it practically tried in churches. When strong men and adult pupils have been proved to be able to endure this strain and are improved by it, it may, without cruelty and iconoclastic stupidity, be fair to try it on weak women and infant scholars. If experimenters will begin there, they will find that in a year many pulpits and churches have been many times over thus emptied, and many graveyards and asylums filled, and the fragments of congregations left will declare that their works do follow them. In mercy, then, begin with ministers and churches, because all concerned will be able-bodied adults and likely to exercise free-will to defend themselves ; then, if it succeeds, we may try it on teachers and little children in our schools, without being guilty of Herod's crime, or breaking all the commandments at once for educational purposes, as Moses did.

THE INDUSTRIAL ELEMENT IN EDUCATION.

What I want to say to you, and through you to all whom it may concern, is, that unless the technical education of the producing classes in America is provided for better than it is now, that is, general education in the elements of art and science for every child, and in the practice of indus-

trial skill for youths and workmen, all the great natural advantages of this country in extent and variety of native products will be neutralized and destroyed.

I would impress upon you that this is a question of general, and not of special, education. The establishment of special industrial schools only, which, after all, is only patchwork veneering, and remedial, not organic and preventive, will not meet the difficulty. That has been tried and failed, and will do so again. You did not dispel illiteracy and ignorance by educating one-quarter of one per cent. of the population, but by teaching all; and you will not by any system of special industrial schools that a community will willingly support, be able to educate even so small a percentage of the whole people as that very insignificant fraction, nor accomplish more for industrial skill by them than the education of a few monks in the middle ages did for the general education of the people, without common schools. Our general education must include the elements of art and science, taught to every child in every school during the whole period of school life, and in reasonable proportion of time to that devoted to other profitable subjects, before special industrial schools are aught but playthings, which they have been and will continue to be whenever and wherever they have been established, without the preliminary preparation for them has been provided in the common schools.

There is no country in the world to-day that can absolutely ignore public education in art and science without becoming impoverished. There is none, inhabited by white races, that has made so little provision for it as we have; and, as a consequence, no other country imports so large a proportion of the products of skilled labor as America; and that means a national leakage where there should be a spring of wealth;

raw materials exported, manufactured goods imported; pennies-worths' sent away, to pay for dollars-worths' brought here. It seems perfectly unaccountable, that, whilst the general education of the people has been so admirably provided for, even if too limited in scope, through being too exclusively literary and theoretical, and the technical education of the professional classes developed in the most complete manner, yet, though apprenticeships to trades have gone out of fashion, the artisan and mechanic are left without technical education, and, generally speaking, the American workman has to work by rule of thumb. Yet, so it is. I invite those who do not like this condition of things, to remedy it.

Whilst you cannot find in any country a body of men with more average intelligence and brightness than American mechanics, you can find none with so few opportunities of improvement, in their several crafts, by education.

As a consequence, our public taste and industrial skill are about in a similar position as the same were in England in 1851. If we are to make a change as radical and complete as was made in that country, we must adopt similar means; and if the political economists are wise in their generation, they will find that there is no time to be lost in providing technical education for working men.

DRAWING, THE TRUE BASIS OF TECHNICAL EDUCATION.

Here I am tempted, and not unwillingly, to make a distinction in your minds between that drawing as an element in education which is the true basis of all technical education, whether used as a language, a weapon, or an interpreter, because it is the only mother tongue common to all men, and that other plaything of the past called picture-making, against which mock heroes and heroines rave and rage in true Quixotic

fashion, confounding the two distinct things, and condemning them both because one was useless. Without a particle of knowledge of the subject, even mere popularity hunters, whose notoriety is fading, will elicit the resurrection of a little ignorant enthusiasm against drawing, by condemning something they miscall drawing, but which is really only the discarded toy which used to be called drawing; and in my experience, no branch of the real drawing which we teach now so rouses their ire as that upon which scientific progress is based, geometry and geometrical drawing. I have been called by every sort of bad name, because I have insisted that Science is the true foundation of Art, and have conducted, and now conduct, the Normal Art School of Massachusetts, upon that axiom, as a corner stone. It matters not whether the art be fine art, or industrial art, it is equally true of both, and this view which has been criticised by some men called artists, because they paint and sell pictures, but who never drew anything correctly in their lives, and never will whilst they are utterly ignorant of science, meets strong confirmation in the words of Herbert Spencer.

He says: "Unexpected as the assertion may be, it is nevertheless true, that the highest art of every kind is based on science; that without science there can be neither perfect production nor full appreciation Only when genius is married to science, can the highest results be produced. Science is necessary, not only for the most successful production, but also for the full appreciation of the fine arts."

This which is true of fine art is more than true of industrial art and art education, for the scientific element in it distinguishes the true from the false, the useful and the fruitful from the useless and sterile. I have endeavored to make this

matter simple by the following statement; one of a series drawn up for the guidance of teachers.

“Good industrial art includes the scientific as well as the artistic element; science securing the necessity of true and permanent workmanship, art contributing the quality of attractiveness and beauty. The study of practical art by drawing should, therefore, comprehend the exactness of science by the use of instruments, as in geometrical drawing and designing, and the acquisition of knowledge of the beautiful, and manual skill in expression, by freehand drawing of historical masterpieces of art and choice natural forms.”

Geometrical drawing is but the interpretation and application of mathematics to industry, bringing the abstract truths of science to the concrete form of service. For which reason the most distinguished American art critic has said that over the door of every workshop in this land should be written the old Greek inscription, “None but the skilled in geometry can enter here.” Now let us see what Herbert Spencer also says about the practical value of mathematics, which, let it be remembered, can only be applied to the purposes he describes through the instrumentality of drawing, in the hands of the architect, engineer and designer, whose work becomes only possible of execution through the skill and taste which drawing alone can give to the mechanic and artificer :

“For all the higher arts of construction, some acquaintance with mathematics is indispensable. The village carpenter who, lacking rational instruction, lays out his work by empirical rules learnt in his apprenticeship, equally with the builder of a Britannia Bridge, makes hourly reference to the laws of quantitative relations. The surveyor, on whose survey the land is purchased; the architect,

in designing a mansion to be built on it; the builder, in preparing his estimates; his foreman, in laying out the foundations; the masons, in cutting the stones, and the various artisans who put up the fittings, are all guided by geometrical truths. Railway-making is regulated, from beginning to end, by mathematics: alike in the preparation of plans and sections; in staking out the line; in the mensuration of cuttings and embankments; in the designing, estimating and building of bridges, culverts, viaducts, tunnels, stations.

And similarly with the harbors, docks, piers, and various engineering and architectural works that fringe the coasts and overspread the face of the country, as well as the mines that run underneath it. Out of geometry, too, as applied to astronomy, the art of navigation has grown; and so, by this science, has been made possible that enormous foreign commerce which supports a large part of our population, and supplies us with many necessities and most of our luxuries. And, now-a-days, even the farmer, for the correct laying out of his drains, has recourse to the level — that is, to geometrical principles. When from those divisions of mathematics which deal with *space* and *number*, some small smattering of which is given in schools, we turn to that other division which deals with *force*, of which even a smattering is scarcely ever given, we meet with another large class of activities which this science presides over. On the application of rational mechanics depends the success of nearly all modern manufacture.

The properties of the lever, the wheel and axle, etc., are involved in every machine. Every machine is a solidified mechanical theorem; and to machinery in these times we owe nearly all production. Trace the history of the breakfast-roll. The soil out of which it came was drained with machine-made tiles, the surface was turned over by a machine, the seed was put in by a machine, the wheat was reaped, thrashed, and winnowed by machines; by machinery it was ground and bolted, and, had the flour been sent to Gosport, it might have been made into biscuits by a machine.

Look round the room in which you sit. If modern, probably the

bricks in its walls were machine-made; by machinery the flooring was sawn and planed, the mantle-shelf sawn and polished, the paper hangings made and printed; the veneer on the table, the turned legs of the chairs, the carpet, the curtains, are all products of machinery. And your clothing — plain, figured, or printed — is it not wholly woven, — nay, perhaps even sewed by machinery? And the volume you are reading; are not its leaves fabricated by one machine and covered with these words by another? Add to which, that for the means of distribution over both land and sea, we are similarly indebted. And then let it be remembered, that according as the principles of mechanics are well or ill used to these ends, comes success or failure, — individual and national.

The engineer who misapplies his formula for the strength of materials, builds a bridge that breaks down. The manufacturer whose apparatus is badly devised, cannot compete with another, whose apparatus wastes less in friction and inertia.

The ship-builder adhering to the old model, is out-sailed by one who builds on the mechanically justified wave-line principle. *And as the ability of a nation to hold its own against other nations depends on the skilled activity of its units, we see that on such knowledge may turn the national fate.* Judge then the worth of mathematics."

If this be true, and knowledge of the kind described and the skill which comes out of it be as important to us nationally, as is alleged, then we should begin to see that drawing is by far the most practical and most profitable of all the subjects taught in our common schools; for through it alone, as the concrete form of mathematics, can this knowledge and skill be acquired by the masses of the people. I commend this to the thoughtful attention of persistent chatterers, who describe drawing as an "ornamental" study which practical people cannot afford.

VALUE OF CRITICISM ON INDUSTRIAL DRAWING.

In this matter teachers are pioneers, which in education is the modern secular name for the early Christian profession of the confessor, who bore testimony through tribulation to his faith. Both encounter trials and persecution, and to both there is now and has ever been the encouraging prospect as a reward for constancy and perseverance, of being finally elevated to the crown of martyrdom.

It seems to me, that well-meaning persons interested in this subject, and anxious to be useful and just in their work and views, when divided into the two sections of teachers and critics, are apt to oppose and misrepresent one another when they practically want and aim at the same thing. It may be as well, therefore, to state most emphatically, that the employment of art and science as an element in general education, because of their intensely useful natures, both esthetically and practically, is altogether a new development, in its universality and significance, here and elsewhere, in which we are all beginners, whether as teachers or as critics. The men who are hard at work upon it in the class-room or on the platform, honestly desiring to be useful and willing to learn by experience, should not be hampered and hindered by the carping of mere speculators without experience, day-dreamers who have visions based on nothing, and theorists whose specifics have never been tested. On the other hand, those who are in the thick of the fight cannot see how the battle goes, nor ought they to complain of the judicial and competent criticism of those who mean well to their Zion, but who do not know enough to understand it. There is a distinction to be made between such criticism and that of incompetent and merely spiteful, jealous, or ignorant fault finders. A hard working teacher, toiling and moiling with a strong heart and heavy

load, has, and ought to have a supreme contempt for the buzzing and booming of these frivolous flies, who think by settling on the wheels of the chariot to impede its progress by humming; whilst he should treat with respect the honest opinion of those who, differing from him in details, still put their shoulders to the wheel, and help.

So that whilst critics have neither history nor precedent in technical educational experience, by which to judge our work, and, therefore, their assaults are mere explosions, not directed fire, having little foresight and no hindsight, teachers must also realize that they themselves are pioneers, whose highest qualification for their work is their ability to learn and make history, and establish precedents, in virtue of this ability. If both agree as to aim and object, however much they may differ about details, progress will be speedy; if one assumes omniscience and the other claims infallibility, progress is impossible. But if between conflicting opinions, the public, without being skilled in the subject of controversy, has to choose which service it most needs, that which is constructive and serves as well as it knows how, or that which is destructive only and assails, there can be no question that, as half a loaf is better than no bread, the public will be better off with a modest half loaf of service than with the paper bill of fare offered to it by the critics, and written in gall or poison.

HOPEFUL SIGNS.

The interest arising in industrial art and art education throughout the length and breadth of this land, far more general and active than that which is felt in fine art, encourages us to hope that before long we shall witness a general advance along the whole line of secondary education. It is badly wanted. The budding signs of an artistic

maturity, the forerunners of something that will become a just pride in the future, are not absent from the present average condition of American society. Premonitory symptoms of a return to the organic love of the beautiful, which in the infancy of our race built the shrines and cathedrals, are evident on all hands. We see indications of it in the art-maniacs which periodically attack our most sensitive and refined people, the visible results of which are not so valuable in themselves as in the evidence they furnish of a life that still exists for a purpose. Thus we have safely passed through the blacking-bottle-decoration period, if not without a scar, yet without permanent disfigurement; the mysteries of China painting and of over-glaze and under-glaze, (in the throes of which many of our best and fairest, unlike their prototypes, have toiled and spinned,) have been explored, and their inner depths sounded without danger; the South Kensington stitch and female pedestrianism have been attacked and defeated coevally, by our esthetic and physical athletes, and the doctors who have watched their patients through these mild attacks elsewhere say we shall be the better for them when the crises are over, for though difficult to bear whilst they last, they are symptoms of our excellent constitution. These infantine troubles, like the cutting of teeth, measles or whooping cough, apparently cannot be avoided, must be gone through, and are not dangerous if allowed to run their courses and are not interfered with. When they have taken their places as strata in the formation of our progressive civilization, we may, perhaps, be strong enough to give up the importation of pagan or heathenish monstrosities, playing with every plucked flower that floats to us from foreign sources, for the gratification of our refined taste; and then begin to patiently toil at the radical work of education,

to develop our own resources, which is a necessary condition for the growth of organic, Christian, American art. When people of wealth and leisure encourage and buy native American art-products from workingmen and women, and give up playing at weak amateur patronage and performance of esthetic tricks in skilled craftsmanship, — the faint echoes from the other side of the oceans of real living arts existing there, — it will be better for everybody, the producer, the possessor and the race. Whilst our adults are thus harmlessly playing with these borrowed plumes, it is for us to lay deep and broad and strong the foundation of a refined national taste, by the art education of all our children. Neither civilization nor skill was ever yet grafted upon a race, as a tree is grafted; it must come as a tree grows, from the seed, and draw its nourishment from the soil which gives it both life and character.

After working and speaking and writing on this theme of industrial art for the last seven years in this State, and having my conclusions strengthened and supported during the last half-year in Europe, from observations personally made there, I find it very refreshing to see, in the last report, just issued, of the Boston School Committee, the following trenchant passage: —

“The question of teaching trades in our schools is one of vital importance. If New England would maintain her place as the great industrial centre of the country, she must become to the United States what France is to the rest of Europe, — the first in taste, the first in design, the first in skilled workmanship. She must accustom her children from early youth to the use of tools, and give them a thorough training in the mechanic arts.”

That, in my humble opinion, is the most important utter-

ance yet made on the subject of technical education in this country; and if every school committee in New England would not only utter but adopt the sentiment, and act upon its conclusions, the one great educational need of the country would soon be remedied.

But see how completely the passage is suggestive of what *should* be done, rather than of what is being done: "The question of teaching trades in our schools is one of vital importance;" and as that is not done now, it points to something in the future, which, if carried out, will completely revolutionize the present scheme of instruction. Then, again, "She (New England) must accustom her children from early youth to the use of tools, and give them a thorough training in the mechanic arts."

This is not said in reference to a few of her children, — picked geniuses, whom not even an infallible pope could choose in their teens, — but all her children; and the term, "mechanic arts" has the broad significance of the words, "industrial arts," creative and productive, not distributive.

As this also is not done now, here is more work for the future, and equally radical and important in its character. Then, "to maintain her place, New England must become the first in taste, the first in design, and the first in skilled workmanship."

You will observe the expression, must *become*, not be as she is, but *become* so in the future. It ought to be remembered, in this connection, that the above language is employed by a body which has already done more to bring about the objects described than any other representative body in the United States; and this expression of what should be sought for in the future seems to me the most hopeful and far-seeing sign and indication that has appeared in the whole educational field, coming from a body which has already done so much.

I honestly believe that it is necessary to the welfare and prosperity of this country, that such views should not only be held, but carried into execution. How, when, and where, are matters of detail upon which opinions would differ, but they are not beyond the power of judicious counsel to solve.

Probably some school-masters, of conservative tendencies, would be shocked at so radical a measure as teaching the use of tools in some of their class-rooms ; and I once heard the master of a school in a beautiful new building, declare that he should oppose the use of a part of his school for a night-class of any sort, because he was afraid the evening students would dirty the steps at the entrance to the school with their boots, in bad weather ! I submit, however, that in such a matter we are the servants of the public, and not their masters ; and if, for cogent public reasons, it be found necessary to engraft the elements of technical education both upon the day-schools and in the establishment of night-classes, we ought to be ready to co-operate with the movement, — for dirty boots and clean ; in fair weather and in foul. If we are not so ready, the sooner we are gathered to our forefathers, the better it will be for everybody, excepting, perhaps, our unfortunate forefathers.

MAKING USE OF OPPORTUNITIES AND EXPERIENCE.

If we turn from a contemplation of the achievements of European nations in imparting value to their great industries, through education, to inquire what we are doing in the same direction in the United States, where our youths do not even have the discipline and benefit of apprenticeships, the prospect is indeed a gloomy one, for the field is almost bare.

Yet our opportunities are as great as those of European

nations, with the single exception of the possession of museums and picture galleries, a want soon to be supplied.

We have as good teachers and as good school buildings as they have anywhere, and all we have to do is to utilize them. Where our teachers have had the opportunity given to them to learn and teach drawing, they have learnt it, and are now teaching it more successfully than it has yet been taught in any European country.

In this matter I know whereof I affirm; and my belief is, that the same result would follow if they were required to teach the elements of science, as that which has transpired from their instruction in the elements of art.

I have been more than encouraged by the results of our labors in the subject of drawing, during the seven years I have lived and worked in America, and say emphatically that if you give American teachers a chance, they can do anything, and do it well, that comes legitimately within the province of public education. We have, in Massachusetts, solved one very important problem. To the vexed question of whether drawing can be taught by the regular teachers to all pupils, we have found an answer of the most conclusive kind, by doing it, and doing it well. The matter has been settled finally for all who are open to conviction, in many cities and towns of this State, and probably in others of many other States. In addition to this, I am enabled to say from my investigations whilst abroad, that in no other country of the world besides America, is the subject of original design taught in all the grades of public schools. Nor do I believe that it is taught so well, even in the grades or countries where it is taught at all, and they are few. Exercises in original design produced by pupils in one of the public schools of this State,

were taken by me this year to Europe and submitted for criticism to some of the most distinguished art-masters and critics. They were executed from the instruction of the regular teachers, by pupils who averaged less than fifteen years of age, and no special teacher of drawing had ever seen the exercises until they were completed. They were not picked, but every exercise done in the classes was there, and, as I happened to be present at the examination when these drawings were made, I saw them produced with my own eyes. These works excited the greatest astonishment and admiration of all who saw them, and they were many and competent judges. The opinion formed of the regular teachers of American schools was more complimentary than I can describe to you, without hurting the feelings of those who have never tried to teach drawing, though it was very gratifying to me to hear those opinions expressed. And as a consequence of what I saw and heard, I do not hesitate to say, that to-day this subject of industrial drawing is better and more systematically taught here in some of the public day-schools of Massachusetts, than it is in any European country, not excepting France nor England. The great trouble is that though it is so well taught, it is not taught in all places, and in every class-room, in every town or city. The law of Massachusetts says that drawing shall be taught to every child; and yet many school committees, and teachers too, say that they do not teach it because there is no penalty attached to a breach of the law! In my opinion, people who only keep the laws when the police are about, are utterly unfitted to have anything to do with the education of children.

I can sympathize with and respect any one who tries to do something good and fails, though I never knew a teacher who honestly tried to teach drawing who did not succeed; but if

there is an unpardonable sin, it must be that which is committed by the people who are elected by their fellow-citizens to bring up the children of a community as law-abiding creatures, and set them the example of open defiance of the laws ; and if there is a sin against the Holy Ghost, it is that.

CONCLUSION.

Fresh from a contemplation of the world's civilization as displayed in the Paris Exhibition, I can say with confidence that if we are wise enough to learn what other nations have learnt from previous exhibitions, and remedy the proved deficiencies of our education, by establishing technical or secondary education, there is no reason for anxiety about our country and its prosperity. But if we cannot learn this lesson, there is real peril in store for us. How can we escape the inevitable penalty of being the last in the race, if we are stagnant whilst other nations are advancing, and who began with a long start ahead? Let me repeat again : "As the ability of a nation to hold its own against other nations depends on the *skilled* activity of its units, we see that on such knowledge may turn the national fate." Protection does not protect : a Chinese wall ten times as strong as the original one, built to cover every inch of the coast-line and frontiers of the United States, would not isolate clumsy or antiquated industries or preserve them for a year ; it would be destroyed from inside. You cannot protect any race of men who are without skill and endurance, except by making them skilled and enduring ; and when we are assailed on the Atlantic coast by skill and on the Pacific by endurance, it is the defence of a quack to say, "Keep them out with a Chinese wall of exclusion." You cannot do it. Spend the same money and the same thought in education to produce greater skill and more endur-

ance than that which assails you, and then no broken reed of a Chinese wall will be required. I wish that the wise words of the Boston School Committee could be heard throughout the length and breadth of this land, and that every live educator would closely examine into this question for himself. We cannot see the bearings of the matter if we limit our observations to the horizon of State, city, or village in which we may happen to live. To grasp the whole significance of it, we must know what has happened elsewhere than in our homes, and at other times than our own. The wisest people are not those who live only from hand to mouth, and see nothing but what they run their heads against.

Cautious and provident folks contemplate the future and prepare themselves for it. We must do so, and find profitable employment for our people, or we shall wax weaker instead of stronger, and our size will only make our ruin great and widespread.

In conclusion, there is one thing which I hope to be excused for suggesting. As a rule, teachers, the masters of public schools, keep sadly too much in the background when public questions are discussed, especially when educational matters are under deliberation for legislative purposes. It used to be said that there were three sexes—men, women, and clergymen. Is it possible that there are two sorts of *men*—citizens and teachers? Is it possible that the annual election of teachers makes it dangerous for the best educated part of the community to take men's parts in public business? If it is so, then, for the sake of the manhood we hold from God, let us emancipate ourselves from a servility that is degrading, and do men's shares of public work.

I know that in the old country an ordained clergyman cannot become a member of Parliament, and it seems to me you

believe that here an ordained grammar or high-school master cannot take part in public affairs without being dropped like an egg, and get into equally hot water. I say it *seems* so, judging from the way schoolmen hold back from their duty in helping to govern the country. But it would not be so if their public duties were manfully done, for education has its weight with both educated and uneducated people. These conventions of teachers are, or appear to be, very refreshing, but primary meetings are both creative and recreative.

I am quite conscious that much of what I have said may be distasteful to many of you. I would remind you, however, that you invited me to address you, and I did not invite you to come and hear me, whilst the doors have been kept open so that you could run away at any moment; but acting on my own doctrine, I dare only say to you that which I honestly believe, about education, present and prospective. If our President had sworn me upon the Bible when ascending this platform, that I should tell the truth, the whole truth, and nothing but the truth, I should have still read to you this paper; not claiming it to be the whole truth, but as much of the truth as I could perceive, and know how to express. Twenty years ago I was hissed on a public platform in England, for advocating free, unsectarian, and compulsory education. To-day, national education in England is unsectarian and compulsory, and free to all who cannot pay. The men who hissed me are all dead. This day I stand here to advocate technical education, everywhere and for everybody, and in twenty years from now we shall have it; and by analogy, if you hiss me for doing so, you will all certainly die. As I think it important that we should all live, and bear our share of the educational burdens of the future, as well or better than we have done in the past, I feel

sure you will not hiss me, and die, because the new year is at hand, and we all want to live amicably through it. And so, thanking you for kindly attention and forbearance, I will say that our country wants our service; we can give it; and I earnestly invoke the blessing of the Almighty upon our labors in the future, and may we have both the skill and courage to perform them well.



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